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To: Commissioner for Patents
Mail Stop Appeal Brief - Patents

From: David F. Janci, USG Corporation
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Date: February 23, 2007

Phone:

Pages: 12, including this cover sheet

Re: Patent Application No. 10/789,000 filed February 26, 2004
Applicants: Thomas M. Mayers et al
Transmittal and Appellants' Appeal Brief

CC:

XX **Please acknowledge** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

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•Comments:

Re the above mentioned, attached are the following:

Transmittal of Appellants' Appeal Brief, 4 pages (in duplicate)

Appellants Appeal Brief, 7 pages

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Patent Application No. 10/789,000

Applicants: Thomas M. Mayers et al

Filed: February 26, 2004

TC/AU: 1772

Examiner: Alicia A. Chevalier

Docket No.: 3608US

TRANSMITTAL OF APPELLANTS' APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with 37 CFR 41.37, appellants hereby submit Appellants' Brief on Appeal.

The items checked below are appropriate:

1. Status of Appellants

This application is on behalf of ☒ other than a small entity or ☐ a small entity.

2. Fee for Filing Brief on Appeal

Pursuant to 37 CFR 41.20(2), the fee for filing the Brief on Appeal is for: ☒ other than a small entity or ☐ a small entity.

Brief Fee Due $500.00

3. Oral Hearing

☐ Appellants request an oral hearing in accordance with 37 CFR 41.47.

A separate paper requesting oral hearing is attached.

4. Extension of Time

☐ Appellants petition for a two-month extension of time under 37 CFR 1.136(a), the fee for which is $450.00.

☒ Appellants believe that no extension of time is required at this time. A Petition for a two-month Extension of Time with the appropriate fee of $450.00 was filed with the US PTO on December 18, 2006. However, this conditional petition is being made to provide for the possibility that appellants have inadvertently overlooked the need for a petition and fee for extension of time.

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Application No. 10/789,00010/789,000
Applicants: Thomas M. Mayers et al

Appeal Brief Transmittal

Extension fee due with this request: $0.00

5. Total Fee Due

The total fee due is:

Brief on Appeal Fee	$500.00
Less Brief on Appeal Fee already paid	$ 0.00
Request for Oral Hearing	$ 0.00
Extension Fee (if any)	$ 0.00

Total Fee Due: $500.00

6. Fee Payment

☐ Attached is a check in the sum of $
☒ Charge Account No. 21-0425 the sum of $500.00. A duplicate of this transmittal is attached.

7. Fee Deficiency.

☒ If any additional fee is required in connection with this communication, charge Account No. 21-0425. A duplicate copy of this transmittal is attached.

Respectfully submitted,

David F. Janci, Reg. No. 28,620

Date: February 23, 2007

MAILING/TRANSMISSION CERTIFICATE UNDER 37 CFR 1.8 OR 1.10			
I hereby certify that this document and all accompanying documents are, on the date indicated below, being ☐ deposited with the U.S. Postal Service using "Express Mail" service in an envelope addressed in the same manner indicated on this document with Express Mail Label Number . ☐ deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed in the same manner indicated on this document, or ☒ facsimile transmitted to the U.S. Patent and Trademark Office at fax number: (571) 273-8300.			
Name (Print/Type)	Judith A. Powers		
Signature		*Date*	February 23, 2007

Appeal Brief Transmittal (Revised 2005 12 05)

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PATENT

Attorney Docket No. 3608

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)	
	)	
Thomas M. Mayers et al	)	Examiner: Alicia A. Chevalier
	)	
Date Filed: February 26, 2004	)	
	)	
Application No.: 10/789,000	)	Group Art Unit: 1772
	)	
Confirmation No. 9213	)	

Title: ABUSE-RESISTANT CAST ACOUSTICAL CEILING TILE HAVING AN EXCELLENT SOUND ABSORPTION VALUE

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS APPEAL BRIEF

Dear Sir:

In support of the appeal from the Final Rejection dated July 27, 2006 and the Panel Decision from Pre-Appeal Brief Review dated December 01, 2006, Appellants now submit their Brief.

Real Party In Interest

The patent application that is the subject of this appeal is assigned to USG Interiors, Inc. which is a wholly owned subsidiary of USG Corporation.

Related Appeals and Interferences

There are no appeals or interferences that are related to this appeal.

Status of Claims

Claims 1-9 have been rejected and claims 10-14 have been withdrawn from consideration. The rejection of claims 1-9 is being appealed.

Status of Amendments

There have been no amendments filed subsequent to the final rejection.

Summary of Claimed Subject Matter

The rejection of claims 1-9 is the subject of this appeal, and claim 1 is the only independent claim involved in the appeal. Claim 1 as originally filed, and not amended, reads as follows:

An abuse-resistant, cast acoustical ceiling tile having a core made from a starch gel and mineral wool fiber composition, wherein the front surface of the tile is coated with aggregate particles having an average particle mean diameter of at least about 1,000 microns.

The abuse-resistant, cast acoustical ceiling tile of claim 1 is described summarily in the specification on page 3, lines 9-16. The application of the aggregate particles to the front surface of the tile is described summarily in the specification on page 3, lines 18-22. The slurry or pulp comprising the core of the ceiling tile is described in detail in the specification on page 3, line 26 through page 4, line 22. The aggregate particles and their deposition on the front surface of the tile is described in detail in the specification on page 4, line 23 through page 5, line 10. The criticality of the average aggregate particle mean diameter is described on page 5, lines 11-17. This criticality is illustrated in Example 2, page 9, line 22 through page 10, line 11.

Referring to the drawings, Figure 4 illustrates an acoustical tile (20) having a surface layer (17) of aggregate particles (16) applied to the surface of a cast mineral fiber core (24). This is disclosed in the specification on page 7, lines 8-14.

Grounds of Rejection to be Reviewed on Appeal

Claims 1, 2, 4-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Forry et al (U.S. Patent No. 4,585,685).

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baig (U.S. Patent Application Publication No. 2002/0139611 which issued as U.S. Patent No. 6,443,256).

Argument

Claims 1, 2, 4-7 and 9 have been rejected under 35 U.S.C. 102(b) as being anticipated by Forry et al (U.S. Patent No. 4,585,685). 35 U.S.C. 102(b) states that a

person shall be entitled to a patent unless the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.

It is noted that both claims 3 and 8, which recite that the aggregate particles are calcium carbonate, have not been rejected under 35 U.S.C. 102 (b) as being anticipated by Forry et al. However, in the Final Rejection the Examiner states that Forry et al discloses "the aggregate particles are selected from the group consisting of calcium carbonate, crushed marble, sand, clay, perlite, vermiculite, crushed stone and glass (column 4, lines 31-41)". The Examiner has erroneously stated that the examples of aggregate disclosed in Forry et al, in column 4 includes calcium carbonate, whereas there is no disclosure of calcium carbonate, Applicants' preferred aggregate, in the examples of aggregate recited in column 4.

In the Final Rejection, the Examiner states that the preamble in the rejected claims, "an abuse-resistant, cast acoustical (sic) ceiling tile", is deemed to be a statement with regard to the intended use and is not further limiting in so far as the structure of the product is concerned. The Examiner further states that in article claims, a claimed intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art MPEP § 2111.02.

"Abuse-resistance" is a property of Applicants' ceiling tile product, and it is a stated object of Applicants' invention to provide a cast acoustical tile having an abuse-resistant surface (specification: page 2, lines 10 and 11). In the Forry et al reference, there is absolutely no disclosure or discussion concerning abuse resistance. There is no disclosure in Forry et al showing how to test for abuse resistance in contrast to the detailed discussion in Applicants' specification page 7, line 15 - page 8, line 16. The Examiner assumes that since Forry et al apply aggregate to a surface of a dry-formed ceiling tile that the Forry et al ceiling tile is abuse resistant. However, as shown in Applicants' Example 2 (page 9, line 22 - page 10, line 11) even a cast ceiling tile which had a surface of aggregate particles having an average particle mean diameter of 800

microns had no improvement in impact resistance compared to a standard cast tile having no aggregate on the surface. This clearly demonstrates the criticality and the patentability of the aggregate particles having an average particle mean diameter of at least about 1000 microns as recited in all of the rejected claims.

In the Final Rejection, the Examiner states that the limitation "cast" is a method limitation and does not determine the patentability of the product, unless the process produces unexpected results. First of all, it should be noted that there is absolutely no disclosure or discussion of a casting process or a cast ceiling tile in Forry et al. In the prior art section of Forry et al, there is a discussion concerning wet-forming procedures for producing acoustical board, but these are wet-forming techniques using a foraminous support wire referred to in the art as wetlaid or water-felting procedures and products. Forry et al does disclose, column 1, lines 42-51, that aggregate facing materials have not been successfully used to produce acoustical materials because the facing materials cannot be adequately adhered to the board when it is in the wet state. Contrary to this teaching by Forry et al, Applicants have discovered that aggregate facing materials can be adhered to ceiling tiles in the wet state provided that the tiles are made by a casting process.

It is believed that the difference between the wetlaid or water-felting products and the cast ceiling tiles of Applicants' invention enabling application of aggregate particles to the wet surface of the cast ceiling tile is the result of a much higher percentage of starch binder in the cast ceiling tile compared to the wetlaid ceiling tile. In the casting process used to make Applicants ceiling tile, the starch gel binder ranges from 75-83 weight percent. Although there is no disclosure in Forry et al concerning the percentage of mineral fiber in the wetlaid products referred to therein, wetlaid mineral wool ceiling tiles made using a foraminous support wire generally have a much higher percentage of mineral wool, such as 70% or more. It is believed that by using Applicants' cast process to form the wet mat to which the aggregate material is applied, the higher percentage of starch binder provides better and stronger bonding between the mat and the aggregate material compared to what can be achieved using a dry-formed web (Forry et al) or a

wetlaid process to form the tile mat. It is also noted that in the Forry et al reference, there is a teaching that the aggregate deposited on the dry-formed web can be mixed with an organic binder, whereas Applicants do not mix a binder with the aggregate.

As disclosed in Applicants' patent application (page 1, line 26 to page 2, line 9), Forry et al disclose applying aggregate material to the surface of a dry-formed web and embedding the aggregate material into the web by a consolidation process.

However, Example 1 of the Forry et al patent discloses preparing a ceiling tile by a wetlaid process using a Fourdrinier apparatus. A dry layer of perlite was applied to the wet mat, passed through a press section, and then dried. Upon testing this sheet material for acoustical properties, Forry et al concluded that the acoustical performance was unacceptable. This disclosure would lead a person skilled in the ceiling tile art away from applying aggregate material to the wet surface of a tile mat. In contrast thereto, and unobvious to a person skilled in the art, Applicants have discovered that if the aggregate material is applied to a wet tile mat made by a casting process, the resulting ceiling tile has excellent acoustical properties and excellent abuse resistance.

Applicants have discovered that in order to obtain improved abuse/impact resistance the aggregate particles must have an average particle mean diameter of at least about 1,000 microns and preferably from about 1,400 microns to about 2,500 microns. There is no teaching of abuse/impact resistance in Forry et al and definitely no teaching of this criticality. The Examiner cites the statement in Example 2 of Forry et al (column 8, line 27) referring to "6 mesh". However, the disclosure states that the "largest perlite particle" was about 6 mesh, and it does not refer to an average particle mean diameter. The reference to the 6 mesh perlite particles related to the thickness of the perlite layer. It did not relate to abuse/impact resistance. Applicants discovered that there is criticality in the average particle mean diameter required to obtain improved abuse/impact resistance (see Example 2).

Claims 1-9 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Baig (U.S. Patent Application Publication No. 2002/0139611). This publication subsequently issued as U.S. Patent No. 6,443,256. The principal disclosure in the Baig

reference relied upon by the Examiner appears in Example 9 (column 10, lines 15-32) wherein it states that the mineral wool rich surface layer was coated with coarse calcium carbonate particles, and the dual layer ceiling tile had an estimated NRC of 0.50.

Example 9 in the Baig reference discloses that the mineral wool rich surface of the dual layer ceiling tiles was coated with dry calcium carbonate particles. The mineral wool rich surface was dry and not a wet surface as in Applicants' process for embedding aggregate particles in the surface of a cast ceiling tile. Furthermore, in the Baig reference, the ceiling tiles were painted with a roll coat and then with a flow coat and dried prior to applying the calcium carbonate particles. The surface to which the calcium carbonate particles were applied was a dry, painted surface. In Applicants' invention, the aggregate particles are embedded in a wet surface.

In the Baig reference, the calcium carbonate particles were spray coated onto the painted and dried surface of the tiles. Applicants' ceiling tiles have aggregate particles which are embedded into the surface of the tile by compressing the aggregate particles into the wet surface of the cast tile. There is no compression procedure disclosed in Example 9 of Baig. Furthermore, Applicants do not apply the aggregate particles to a painted surface.

There is no teaching in the Baig reference relative to abuse/impact resistance. Baig does state that the calcium carbonate particles were coarse but there is no definition as to what is meant by the term "coarse". There is no disclosure that the average particle mean diameter is critical to achieving improved abuse/impact resistance or that the average particle mean diameter must be at least about 1,000 microns.

In Example 9 of the Baig reference, there is a statement that "the mineral wool rich surface was coated with dry calcium carbonate particles". In column 4, lines 1-18 of the Baig reference, there is a disclosure that the mineral wool fiber content in the fiber-rich surface layer ranges from 70-90 weight percent. In Applicants' ceiling tile made by a casting process, the wet surface layer comprises 75-83 weight percent starch gel and only 17-25 weight percent mineral wool fibers (page 4, lines 17-22). It is believed that this high percentage of starch gel provides better and stronger bonding between the mat

and the aggregate particles, whereas if the aggregate particles were to be compressed into the fiber-rich surface layer of the Baig ceiling tile, the aggregate particles would not be adequately adhered to the wet fiber-rich surface as taught by Forry et al (column 1, lines 42-45).

For the reasons set forth above, Applicants' claims 1-9 are not anticipated by Forry et al, and are patentable over the Baig reference.

Respectfully submitted,

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